

Appl. No. 09/997,938
Response dated February 20, 2007
Reply to Office Action mailed October 18, 2006

Docket No. BP 1791

IN THE CLAIMS

Please amend the claims as follows, substituting any amended claim(s) for the corresponding pending claim(s):

1. (currently amended) A method for transmit power control of transmitting wireless device, the method comprises:

transmitting, by the transmitting wireless device, a packet to a targeted wireless device via a wireless channel at a first power level;

determining, by the targeted wireless device, signal strength and decoding error information of the packet received via the wireless channel;

determining, by the targeted wireless device, whether the signal strength is within an acceptable range of signals strengths;

determining, by the targeted wireless device, whether the decoding error information is within an acceptable range of error rate; and

~~when the signal strength is not within the acceptable range of signals strengths or when the decoding error information is not within the acceptable range of error rate,~~
~~determining, by the targeted wireless device, a second power level for the transmitting wireless device such that the signal strength is within the acceptable range of signals strengths and the decoding error information is within the acceptable range of error rate;~~
and

transmitting, by the targeted wireless device, a packet indicating the ~~second power level~~
determined signal strength of the received packet to the transmitting wireless device via the wireless channel.

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2. (original) The method of claim 1, wherein the transmitting the packet further comprises:

transmitting the packet to include an indicated power level of transmission by the transmitting wireless device.

3. (previously presented) The method of claim 1 further comprise:

receiving a radio frequency signal modulated to carry the packet;

determining a received signal strength indicator (RSSI) of the radio frequency signal to produce an RSSI, wherein the RSSI corresponds to the signal strength;

converting the radio frequency signal into a baseband signal;

demodulating the baseband signal to recapture data;

computing the decoding error information of the recaptured data;

generating the second power level to be greater than the first power level when the RSSI is less than a lower threshold of a range of acceptable RSSI or when the decoding error information is less than a lower error rate threshold of the range of acceptable error rates; and

generating the second power level to be less than the first power level when the RSSI is greater than an upper threshold of the range of acceptable RSSI or when the decoding error information is greater than an upper error rate threshold of the range of acceptable error rates.

4. (cancelled)

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5. (original) The method of claim 1 further comprises:

providing, by the transmitting wireless device, an acknowledgement of receipt of the second power level to the targeted wireless device; and

providing, by the transmitting wireless device, an indication of power level adjustment from the first power level to the second power level to the targeted wireless device.

6. (previously presented) The method of claim 1 further comprises:

transmitting, by a station as the transmitting wireless device, the packet to an access point via a wireless channel at a first power level within an 802.11 wireless network;

determining, by the access point as the targeted wireless device, the signal strength of the packet, the decoding error information, and the second power level.

7. (previously presented) The method of claim 1 further comprises:

transmitting, by an access point as the transmitting wireless device, the packet to a station via a wireless channel at a first power level within an 802.11 wireless network;

determining, by the station as the targeted wireless device, the signal strength of the packet, the decoding error information, and the second power level.

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8. (original) A method for transmit power control of transmitting wireless device, the method comprises:

transmitting, by the transmitting wireless device, a packet to a targeted wireless device via a wireless channel at a first power level;

determining, by the targeted wireless device, signal strength of the packet received via the wireless channel to produce a determined signal strength;

transmitting, by the targeted wireless device, the determined signal strength of the packet to transmitting wireless device,

determining, by the transmitting wireless device, adequacy of the first power level based on the determined signal strength;

when the first power level is not adequate, determining, by the transmitting wireless device, a second power level for the transmitting wireless device based on the determination of the adequacy of the first power level; and

adjusting, by the transmitting wireless device, transmit power from the first power level to the second power level when the first power level is not adequate.

9. (original) The method of claim 8, wherein the determining the signal strength, determining the adequacy of the first power level, and determining the second power level further comprise:

receiving, by the targeted wireless device, a radio frequency signal modulated to carry the packet;

determining, by the targeted wireless device, received signal strength indicator (RSSI) of the radio frequency signal to produce an RSSI;

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converting, by the targeted wireless device, the radio frequency signal into a baseband signal;

demodulating, by the targeted wireless device, the baseband signal to recapture data;

computing, by the targeted wireless device, accuracy of the recaptured data;

separating, by the targeted wireless device, the recaptured data to isolate the indicated power level of transmission from data;

providing, by the targeted wireless device, the RSSI and the accuracy of the recaptured data to the transmitting wireless device;

analyzing, by the transmitting wireless device, the RSSI and the accuracy of the recaptured data to produce the adequacy of the first power level;

generating, by the transmitting wireless device, the second power level to be greater than the first power level when the RSSI or accuracy of the recaptured data are below corresponding minimum performance thresholds; and

generating, by the transmitting wireless device, the second power level to be less than the first power level when the RSSI and the accuracy of the recaptured data are above acceptable performance thresholds.

10. (original) The method of claim 8 further comprises:

providing, by the transmitting wireless device, an indication of power level adjustment from the first power level to the second power level to the targeted wireless device.

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11. (original) The method of claim 8 further comprises:

transmitting, by a station as the transmitting wireless device, the packet to an access point via a wireless channel at a first power level within an 802.11 wireless network;

determining, by the access point as the targeted wireless device, the signal strength of the packet and the adequacy of the first power level; and

determining, by the station, the second power level when the first power level is not adequate.

12. (original) The method of claim 8 further comprises:

transmitting, by an access point as the transmitting wireless device, the packet to a station via a wireless channel at a first power level within an 802.11 wireless network;

determining, by the station as the targeted wireless device, the signal strength of the packet and the adequacy of the first power level; and

determining, by the access point, the second power level when the first power level is not adequate.

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13. (currently amended) A wireless communication network that includes a plurality of basic service sets, wherein each of the plurality of basic service sets comprises:

access point (AP); and

plurality of stations, wherein the access point includes an AP processing module and AP memory, wherein the AP memory includes operational instructions that cause the AP processing module to:

receive a packet from one of the plurality of stations a wireless channel at a first power level;

determine signal strength and decoding error information of the packet received via the wireless channel;

determine whether the signal strength is with an acceptable range of signal strengths;

determine whether the decoding error information is within an acceptable range of error codes;

~~when the signal strength is not within the acceptable range of signal strengths or when the decoding error information is not within the acceptable range of error codes, determine a second power level for the one of the plurality of stations such that the signal strength is within the acceptable range of signal strengths and the decoding error information is within the acceptable range of error codes; and~~

transmit a packet indicating signal strength for the received packet the ~~second~~ power level to the one of the plurality of stations via the wireless channel; and

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wherein each of the plurality of stations (STA) includes a STA processing module and STA memory, wherein the STA memory includes operational instructions that cause the STA processing module to:

transmit the packet to the access point via the wireless channel at the first power level;

provide an acknowledgement of receipt of the second power level to the access point; and

provide an indication of power level adjustment from the first power level to the second power level to the access point.

14. (original) The wireless communication network of claim 13, wherein the STA memory further comprises operational instructions that cause the one of the plurality of stations to transmit the packet by:

transmitting the packet to include an indicated power level of transmission to identify the first power level.

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15. (previously presented) The wireless communication network of claim 14, wherein the access point further comprises:

radio receiver operably coupled to receive a radio frequency signal modulated to carry the packet, wherein the radio receiver determines received signal strength indicator (RSSI) of the radio frequency signal to produce an RSSI, converts the radio frequency signal into a baseband signal, and demodulates the baseband signal to recapture data;

wherein the AP memory further includes operational instructions that cause the access point to:

compute the decoding error information of the recaptured data;

generating the second power level to be greater than the first power level when the RSSI is less than a lower threshold of a range of acceptable RSSI or when the decoding error information is less than a lower error rate threshold of the range of acceptable error rates; and

generating the second power level to be less than the first power level when the RSSI is greater than an upper threshold of the range of acceptable RSSI or when the decoding error information is greater than an upper error rate threshold of the range of acceptable error rates.

16. (cancelled)

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17. (original) The wireless communication network of claim 13, wherein the STA memory further comprises operational instructions that cause the STA processing module of the one of the plurality of stations to:

receive a second packet from the access point via the wireless channel at a third power level;

determine signal strength of the second packet received via the wireless channel to produce a second determined signal strength;

determine adequacy of the third power level based on the second determined signal strength;

determine a fourth power level for the access point based on the determination of the adequacy of the third power level when the third power level is not adequate; and

transmit a packet indicating the fourth power level to the access point via the wireless channel; and

wherein AP memory further includes operational instructions that cause the AP processing module to:

transmit the second packet to the one of the plurality of stations via the wireless channel at the third power level;

provide an acknowledgement of receipt of the fourth power level to the one of the plurality of stations; and

provide an indication of power level adjustment from the third power level to the fourth power level to the one of the plurality of stations.

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18. (original) The wireless communication network of claim 17, wherein the AP memory further comprises operational instructions that cause the AP processing module to transmit the packet by:

transmitting the second packet to include an indicated power level of transmission to indicate the third power level.

19. (original) The wireless communication network of claim 14, wherein the one of the plurality of stations further comprises:

radio receiver operably coupled to receive a second radio frequency signal modulated to carry the second packet, wherein the radio receiver determines received signal strength indicator (RSSI) of the second radio frequency signal to produce second RSSI, converts the second radio frequency signal into a second baseband signal, and demodulates the second baseband signal to recapture second data;

wherein the STA memory further includes operational instructions that cause the one of the plurality of stations to determine the adequacy of the third power level and determine the fourth power level by:

computing accuracy of the recaptured second data;

separating the recaptured second data to isolate the indicated power level of transmission from data;

analyzing the second RSSI and the accuracy of the recaptured second data to produce the adequacy of the third power level;

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generating the fourth power level to be greater than the third power level when the second RSSI or the accuracy of the recaptured second data are below corresponding minimum performance thresholds; and

generating the fourth power level to be less than the third power level when the second RSSI and the accuracy of the recaptured second data are above acceptable performance thresholds.

20. (original) The wireless communication network of claim 17, wherein the one of the plurality of stations further comprises:

radio transmitter operably coupled to transmit a request for identifying the third power level to the access point;

radio receiver operably coupled to receive a second radio frequency signal modulated to carry the second packet and the indication of the third power level, wherein the radio receiver determines received signal strength indicator (RSSI) of the radio frequency signal to produce second RSSI, converts the second radio frequency signal into a second baseband signal, and demodulates the second baseband signal to recapture second data;

wherein the STA memory further includes operational instructions that cause the one of the plurality of stations to determine the adequacy of the third power level and determine the fourth power level by:

computing accuracy of the recaptured second data;

separating the recaptured second data to isolate the indicated power level of transmission from data;

analyzing the second RSSI and the accuracy of the recaptured second data to produce the adequacy of the third power level;

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generating the fourth power level to be greater than the third power level when the second RSSI or the accuracy of the recaptured second data are below corresponding minimum performance thresholds; and

generating the fourth power level to be less than the third power level when the second RSSI and the accuracy of the recaptured second data are above acceptable performance thresholds.

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21. (original) A wireless communication network that includes a plurality of basic service sets, wherein each of the plurality of basic service sets comprises:

access point (AP); and

plurality of stations, wherein the access point includes an AP processing module and AP memory, wherein the AP memory includes operational instructions that cause the AP processing module to:

receive a packet from one of the plurality of stations via a wireless channel at a first power level;

determine signal strength of the packet received via the wireless channel to produce a determined signal strength;

transmit the determined signal strength of the packet to the one of the plurality of stations;

wherein each of the plurality of stations (STA) includes a STA processing module and STA memory, wherein the STA memory includes operational instructions that cause the STA processing module to:

transmit the packet to the access point via a wireless channel at the first power level;

determine adequacy of the first power level based on the determined signal strength;

determine a second power level based on the determination of the adequacy of the first power level when the first power level is not adequate; and

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adjust transmit power from the first power level to the second power level when the first power level is not adequate.

22. (original) The wireless communication network of claim 21, wherein the access point further comprises:

radio receiver operably coupled to receive a radio frequency signal modulated to carry the packet, wherein the radio receiver determines received signal strength indicator (RSSI) of the radio frequency signal to produce an RSSI, converts the radio frequency signal into a baseband signal, and demodulates the baseband signal to recapture data;

wherein the AP memory further includes operational instructions that cause the access point to determine the adequacy of the first power level by:

computing accuracy of the recaptured data;

providing the RSSI and the accuracy of the recaptured data to the transmitting wireless device;

wherein the STA memory further includes operational instructions that cause the STA processor to determine the adequacy of the first power level and to determine the second power level by:

analyzing the RSSI and the accuracy of the recaptured data to produce the adequacy of the first power level;

generating the second power level to be greater than the first power level when the RSSI or accuracy of the recaptured data are below corresponding minimum performance thresholds; and

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generating the second power level to be less than the first power level when the RSSI and the accuracy of the recaptured data are above acceptable performance thresholds.

23. (original) The wireless communication network of claim 21, wherein the STA memory further comprises operational instructions that cause the STA processing module to:

provide an indication of power level adjustment from the first power level to the second power level to the access point.

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24. (currently amended) A station for use in a wireless communication network, the station (STA) comprises:

a STA processing module; and

STA memory operably coupled to the STA processing module, wherein the STA memory includes operational instructions that cause the STA processing module to:

receive a packet from an access point via a wireless channel at a first power level;

determine signal strength and decoding error information of the packet received via the wireless channel;

determine whether the signal strength is within an acceptable range of signal strengths;

determine whether the decoding error information is within an acceptable range of error rates; and

~~when the signal strength is not within the acceptable range of signals strengths or when the decoding error information is not within the acceptable range of error rate, determine, by the targeted wireless device, a second power level for the transmitting wireless device such that the signal strength is within the acceptable range of signals strengths and the decoding error information is within the acceptable range of error rate; and~~

transmit a packet indicating the determined signal strength for the received packet ~~second power level~~ to the access point via the wireless channel.

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25. (previously presented) The station of claim 24, wherein the STA memory further comprises operational instructions that cause the STA processing module to:

compute the decoding error information accuracy of the recaptured data;

generating the second power level to be greater than the first power level when the RSSI is less than a lower threshold of a range of acceptable RSSI or when the decoding error information is less than a lower error rate threshold of the range of acceptable error rates; and

generating the second power level to be less than the first power level when the RSSI is greater than an upper threshold of the range of acceptable RSSI or when the decoding error information is greater than an upper error rate threshold of the range of acceptable error rates.

26. (cancelled)

27. (cancelled)

28. (cancelled)

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29. (currently amended) An access point for use in a wireless communication network, the access point (AP) comprises:

an AP processing module; and

AP memory operably coupled to the AP processing module, wherein the AP memory includes operational instructions that cause the AP processing module to:

receive a packet from one of a plurality of stations of the wireless communication network via a wireless channel at a first power level;

determine signal strength and decoding error information of the packet received via the wireless channel;

determine whether the signal strength is within an acceptable range of signal strengths;

determine whether the decoding error information is within an acceptable range of error rates;

~~when the signal strength is not within the acceptable range of signals strengths or when the decoding error information is not within the acceptable range of error rate, determining, by the targeted wireless device, a second power level for the transmitting wireless device such that the signal strength is within the acceptable range of signals strengths and the decoding error information is within the acceptable range of error rate; and~~

transmit a packet indicating the determined signal strength of the received packet ~~second power level~~ to the one of the plurality of stations via the wireless channel.

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30. (previously presented) The access point of claim 29 further comprises:

radio receiver operably coupled to receive a radio frequency signal modulated to carry the packet, wherein the radio receiver determines received signal strength indicator (RSSI) of the radio frequency signal to produce an RSSI, converts the radio frequency signal into a baseband signal, and demodulates the baseband signal to recapture data;

wherein the AP memory further includes operational instructions that cause the access point to:

compute the decoding error information accuracy of the recaptured data;

generating the second power level to be greater than the first power level when the RSSI is less than a lower threshold of a range of acceptable RSSI or when the decoding error information is less than a lower error rate threshold of the range of acceptable error rates; and

generating the second power level to be less than the first power level when the RSSI is greater than an upper threshold of the range of acceptable RSSI or when the decoding error information is greater than an upper error rate threshold of the range of acceptable error rates.

31. (cancelled)

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32. (original) The access point of claim 29, wherein the AP memory further comprises operational instructions that cause the AP processing module to:

transmit a second packet to the one of the plurality of stations via the wireless channel at the third power level;

provide an acknowledgement of receipt of the fourth power level to the one of the plurality of stations; and

provide an indication of power level adjustment from the third power level to the fourth power level to the one of the plurality of stations.

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33. (original) A station for use in a wireless communication network, the station (STA) comprises:

a STA processing module; and

STA memory operably coupled to the STA processing module, wherein the STA memory includes operational instructions that cause the STA processing module to:

transmit a packet to an access point of the wireless communication network via a wireless channel at the first power level;

determine adequacy of the first power level based on a determined signal strength received from the access point;

determine a second power level based on the determination of the adequacy of the first power level when the first power level is not adequate; and

adjust transmit power from the first power level to the second power level when the first power level is not adequate.

34. (original) The station of claim 33, wherein the STA memory further comprises operational instructions that cause the STA processor to determine the adequacy of the first power level and to determine the second power level by:

receiving received signal strength indicator (RSSI) and accuracy of the recaptured data from the access point;

analyzing RSSI and the accuracy of the recaptured data to produce the adequacy of the first power level;

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generating the second power level to be greater than the first power level when the RSSI or accuracy of the recaptured data are below corresponding minimum performance thresholds; and

generating the second power level to be less than the first power level when the RSSI and the accuracy of the recaptured data are above acceptable performance thresholds.

35. (original) The station of claim 33, wherein the STA memory further comprises operational instructions that cause the STA processing module to:

provide an indication of power level adjustment from the first power level to the second power level to the access point.

36. (cancelled)

37. (cancelled)